Picea mariana / Alnus incana / Sphagnum spp. Forest (Black Spruce / Alder Rich Swamp)

COMMON NAME	Black Spruce / Speckled Alder / Peatmoss species Forest
SYNONYM	Black Spruce / Alder Rich Swamp
PHYSIOGNOMIC CLASS	Forest (I)
PHYSIOGNOMIC SUBCLASS	Evergreen forest (I.A)
PHYSIOGNOMIC GROUP	Temperate or subpolar needle-leaved evergreen forest (I.A.8)
PHYSIOGNOMIC SUBGROUP	Natural/Semi-natural (I.A.8.N)
FORMATION	Saturated temperate or subpolar needle-leaved evergreen forest (I.A.8.N.g)
ALLIANCE	PICEA MARIANA SATURATED FOREST ALLIANCE

CLASSIFICATION CONFIDENCE LEVEL 1

USFWS WETLAND SYSTEM TERRESTRIAL

RANGE

Voyageurs National Park

This type is most common in the northern parts of the park, where peatlands are more extensive, but can be found throughout the park in small confined basins.

Globally

This community is found in northern Minnesota, northern Michigan, northwestern Ontario, and southeastern Manitoba.

ENVIRONMENTAL DESCRIPTION

Voyageurs National Park

This type occurs as part of large peatlands, in confined basins and along the upland margins of less minerotrophic peatlands. The substrate is deep, fibric Sphagnum peat or peat over clay. Hummock and hollow microtopography is moderately to well developed with standing water occasionally occurring in the hollows. The water regime is saturated.

Globally

This type occurs as part of large peatlands, in confined basins and along the upland margins of less minerotrophic peatlands (M. Smith personal communication 1999). Stands occur on level, wet, poorly drained organic soils (Zoladeski 1995). The substrate is deep, fibric Sphagnum peat or shallow peat over clay. Hummock and hollow microtopography is moderately to well developed with standing water occasionally occurring in the hollows. The water regime is saturated.

MOST ABUNDANT SPECIES

Voyageurs National Park

Stratum	Species
Tree canopy	*Picea mariana*
Tall shrub	*Alnus incana*
Short shrub	*Ledum groenlandicum, Chamaedaphne calyculata*
Forb	*Maianthemum trifolium*
Graminoid	*Calamagrostis canadensis, Carex lacustris*
Nonvascular	*Sphagnum* spp.

Globally

Stratum	Species
Tree canopy	*Picea mariana, Picea glauca*
Tall shrub	*Alnus incana*
Graminoid	*Carex rostrata, Calamagrostis canadensis*
Nonvascular	*Sphagnum* spp., *Calliergon* sp.

CHARACTERISTIC SPECIES

Voyageurs National Park

Picea mariana, Alnus incana

Globally
Picea mariana, Alnus incana

VEGETATION DESCRIPTION

Voyageurs National Park
The canopy of *Picea mariana* in this community is typically uneven aged and fairly open, ranging from 20-40%. In rare cases, canopy coverage may be as high as 90%. *Larix laricina* and *Thuja occidentalis* can also be found in the canopy at low cover. A shrub layer of *Alnus incana* and *Picea mariana* ranges from 30-90% but is most commonly found in the upper part of that range. The dwarf-shrub strata is dominated by *Ledum groenlandicum* and, to a lesser extent, *Chamaedaphne calyculata*. Coverage of dwarf-shrubs is highly variable (10-80%). The herbaceous layer is typically moderately rich and dominated by *Calamagrostis canadensis, Maianthemum trifolium,* and/or *Carex lacustris. Carex trisperma, Osmunda cinnamomea, Equisetum sylvaticum, Cornus canadensis*, and *Dryopteris carthusiana* are also common. The cover of herbaceous species is highly variable, ranging from 20-90%. Sphagnum moss typically occupies 90-100% of the forest floor. The most abundant species are *Sphagnum magellanicum, Sphagnum girgensohnii, Sphagnum centrale, Sphagnum wulfianum,* and *Sphagnum recurvum sensu lato*.

Globally
The overstory is composed almost exclusively of conifers. *Picea mariana* is the most abundant tree and may occur in pure stands. *Abies balsamea, Larix laricina*, and *Thuja occidentalis* vary from minor to codominant. There is a moderately well developed tall shrub/sapling layer, consisting of *Alnus incana* and saplings of the canopy trees. Several shrubs, many of them ericaceous, make up a low shrub layer. These include *Andromeda polifolia, Chamaedaphne calyculata, Gaultheria hispidula, Ledum groenlandicum, Linnaea borealis, Rubus pubescens*, and *Vaccinium angustifolium*. The herbaceous layer is frequently species rich, containing species such as *Calamagrostis canadensis*, *Carex leptalea*, *Carex trisperma, Clintonia borealis, Coptis trifolia, Cornus canadensis, Dryopteris cristata, Eriophorum* spp., *Mitella nuda*, and *Trientalis borealis*. Mosses include *Dicranum flagellare, Dicranum polysetum, Pleurozium schreberi, Ptilium crista-castrensis, Sphagnum girgensohnii, Sphagnum magellanicum*, and *Sphagnum nemoreum* (Sims *et al.* 1989, Harris *et al.* 1996, Chambers *et al.* 1997).

CONSERVATION RANK G5.

DATABASE CODE CEGL002452

COMMENTS

Voyageurs National Park
Diagnostic features of the type include the canopy of *Picea mariana* with less than 25% cover of other conifers and a shrub layer of *Alnus incana*. Analogous to Ontario's W29 and W30 (Harris *et al.* 1996). The Black Spruce-Tamarack Poor Swamp is very similar to the Black Spruce/Alder Rich Swamp but contains greater than 25% relative cover of Larix laricina. In cases where spruce cover is low, this type can grade into the Speckled Alder Swamp.

REFERENCES

Chambers, B.A., B.J. Naylor, J. Nieppola, B. Merchant, P. Uhlig. Field Guide to Forest Ecosystems of Central Ontario. Southcentral Science Section (SCSS) Field Guide FG-01, Ontario Ministry of Natural Resources, North Bay, Ontario, Canada. 200 pp.

Harris, A. G., S. C. McMurray, P. W. C. Uhlig, J. K. Jeglum, R. F. Foster, and G. D. Racey. 1996. Field guide to the wetland ecosystem classification for northwestern Ontario. Ontario Ministry of Natural Resources, Northwest Science and Technology, Thunder Bay, Ontario. Field guide FG-01. 74 p.

Janssen, C. R. 1967. A floristic study of forests and bog vegetation, northwestern Minnesota. Ecology 48(5):751-765.

Kurmis, V., S. L. Webb, and L. C. Merriam. 1986. Plant communities of Voyageurs National Park, Minnesota, U.S.A. Can. J. Bot. 64:531-540.

Minnesota Natural Heritage Program. 1993. Minnesota's native vegetation: A key to natural communities. Ver. 1.5. Minn. Dep. Nat. Resour., Nat. Heritage Prog. St. Paul, Minn. 110 p.

Sims, R. A., W. D. Towill, K. A. Baldwin, and G. M. Wickware. 1989. Field guide to the forest ecosystem classification for northwestern Ontario. Ontario Ministry of Natural Resources.

Zoladeski, C. A., G. M. Wickware, R. J. Delorme, R. A. Sims, and I. G. W. Corns. 1995. Forest ecosystem classification for Manitoba: field guide. Natural Resources Canada, Canadian Forest Service, Northwest Region, Northern Forestry Center, Edmonton, Alberta. Special Report 2.